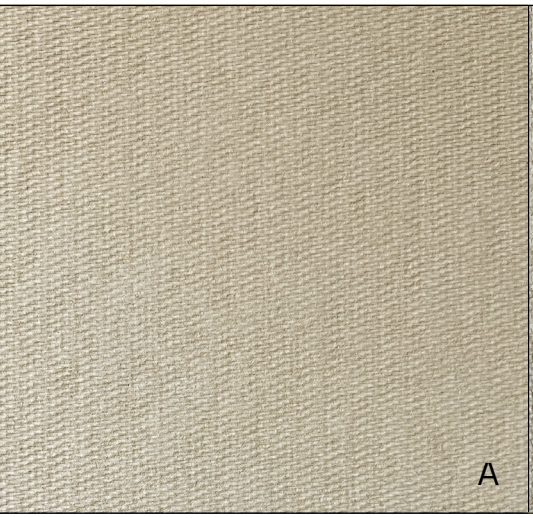
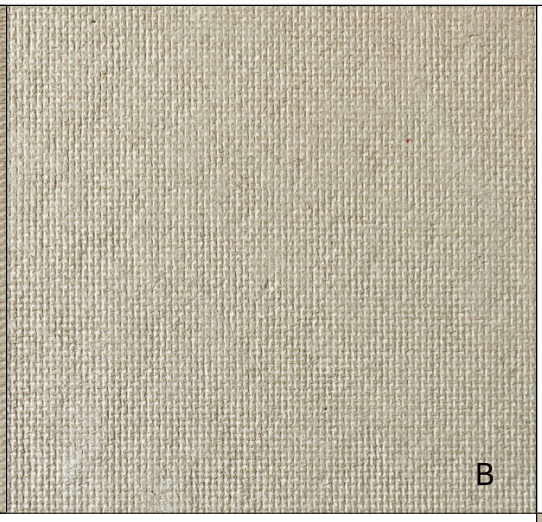
Handling and Processing Tips

December 2023





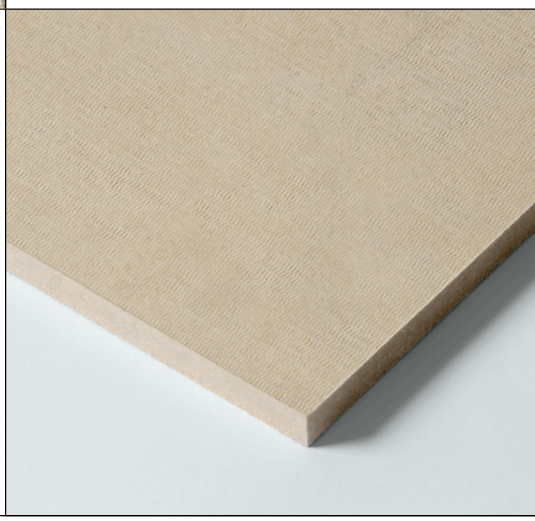
1. Surface characteristics

The HONEXT® Boards have a mesh texture on both sides (A and B). Side A is meant to be exposed. Please ensure that during processing and installation, you correctly identify side A of the board and the direction of the texture.

The HONEXT® Boards are made from upcycled paper and cardboard fibres, without the use of resins or harmful chemicals. Slight color variations may occur between batches, and patterns similar to watermarks can be present, as a result of the innovative HONEXT® Process. It's always necessary to protect the surface using the recommended finishes, as outlined in (5. Finishes).

2. Machining

The HONEXT® Boards can be processed using the same type of machinery as in the wood industry. However, it's important to use appropriate tools and adjust certain parameters for good results. The HONEXT® Boards are composed of short cellulose fibres and do not contain adhesives or resins. Therefore, for optimal outcomes, it's recommended to machine them at higher rotational speeds (RPM) and slower feed rates than those used for other types of fibreboards. See the results based on the parameters and tools used (fig.1 & fig.2).



2.1. Beam saw cutting

It is recommended to use cutting saw blades with at least 96 teeth for composites (laminate particle boards), at a speed of at least 4500 rpm and a feed rate of 0.5–1 m/s. Applying a smooth entry and exit of the disc is advisable. While performing the cut, it's possible that the edge might show saw marks or small nicks, which can be corrected by gentle sanding with a sandpaper of grit (120–180).

Fig.1

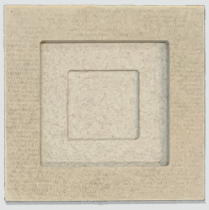


Fig.2

2.2. CNC cutting and milling

To achieve good results, the most crucial parameters to consider are the machine's feed rate (m/min), tool rotation speed (RPM), as well as the tool type used and the diameter.

IMPORTANT:

As it's a material without resins or binders, use right-hand negative helix (RH-LD) tools with sharp edges and high chip flow. These are recommended for fine surface finishes in plastics, wood, or HPL. The left helix reduces surface burrs and enhances workpiece grip due to the compression effect. TThe result is improved with double helix cutters.

It's advisable to use tools with small diameters by programming a soft exit, as well as firmly fixing the tool to the chuck and the material to the worktable avoiding possible vibrations. The use of the recommendations reduces post-production on edges and recessed surfaces.

Cutting speed: V_c**= [(D/2)/1000] · [2·π·n/60] = (D·π·n)/6000 Tooth feed: F_z*= (V_f · 1000) / (n ·Z)

MACHINING

2.3. Tooling Leitz

HW Drill bit Excellent (Shank 10), 033501
D8, S10×25, GL 70 mm, Z 2 / V 2 Diam. Ø3–10mm.
F_z= 0,20 mm / V_c= 1,88 m/s / n= 4.500 RPM

HW Drill Forstner (Hinges) 037214
D35, S10×26, GL 70 mm, Z 2 / V 2 Diam. Ø15–35mm.
F_z= 0,19 mm / V_c= 6,41 m/s / n= 3.500 RPM

HW Router Diamaster QUATTRO EdgeExpert, 191071
RH, NL32, S20×50, GL90; Z2+2;
F_z= 0,13 mm / V_c= 25,1 m/s / n= 24.000 RPM

HW Spiral finishing router cutter alternate twist angle, 042536
RH, NL22, S12×40, GL70; Z2+2;
F_z= 0,13 mm / V_c= 15,1 m/s / n= 24.000 RPM

HW Saw disc Katana, 161201
D303×3.2/2.2×30; Z100, WZ/WZ/FZ

MACHINING

2.4. Parameters

DRILLING:
Rev. Speed: 4.500 a 18.000 RPM
Feed speed: 1.5 - 2 m/min
(For large drilling areas a multi-drill head is required)

CNC cutting and milling:
Rev. Speed: 18.000 a 24.000 RPM
Feet speed: 2 - 6 m/min (depending on tool and desired finish)
Maximum depth per run: 4 mm

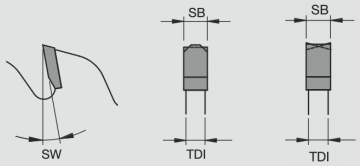
SAW DISC CUTTING:
Rev. Speed: 4.500 RPM
Feet speed: 0,5 - 1 m/min

V_c**= Cutting speed (m/s) "Quickness "
F_z*= Thoot feed (mm) "Quality"
V_f= Feed speed (m/min) D= cutting circle diameter (mm)
Z= number of teeth n= turns/min o RPM

HW 033501
V_f= 1,5m/min @ 4.500RPM

HW 191071
V_f= 6m/min @ 24.000RPM

HW 042536
V_f= 6m/min @ 24.000RPM



Trapezoid Teeth Alernating Teeth

MACHINING

2.5. Trimming and profiling

DIXI 7306: Right-Hand Negative Helix End Mill
DIXI 7112: Double Helix Finish End Mill
DIXI 7626: V-shaped Blade Engraving and Chamfering End Mill

Rev. Speed: 20,000 RPM
Feed speed: 2 m/min

For a smooth linear (curved or straight) recess finish, use the DIXI 7306 in multiple passes until achieving the desired effect. For optimal results in creating recesses, first use the DIXI 7306 and then follow up with the DIXI 7112. (Fig. 3)

Both surface motif engraving and edge chamfering work effectively on the HONEXT® Boards and provide an efficient way to accentuate or conceal joints between different pieces. (Fig. 4)

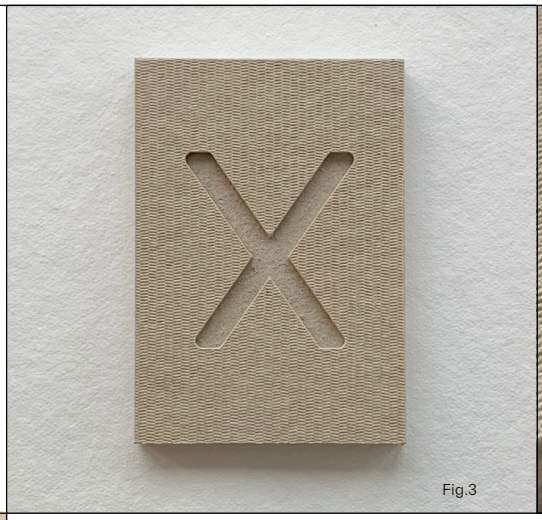


Fig.3

Fig.4

3. Sanding and calibrating

Calibrating is recommended to ensure good continuity between panels in cases where the wall or ceiling installation does not have a marked joint (±5mm). Sanding can be done from a range to finer finishes based on the grit sizes of the sandpaper used. To perform this operation, it is advisable to use an industrial contact sander with two roller belts. (to remove grain texture: 60–80), (for semi-fine finishing: 150–240).

4. Laminating

It is advisable to calibrate the B side of the board to enhance its surface for gluing during the lamination process. The recommended adhesives are: PVAc 8550 - EPI: 4421/1993 - LignumPro® Cero A201 from AkzoNobel, using about 170 g/m2. These adhesives do not affect the recyclability of the material. If these specific references are not available, it is recommended to conduct a preliminary test. Whenever the board is glued or laminated with a surface finish or another board, the best result is achieved using a hot press with a pressure of 150Kg/m2, following the curing instructions of the product used.

5. Finishing

To protect the HONEXT® Boards against dirt and scratches, we advise consistent application of a water-based varnish to maintain their natural appearance and sustainability attributes. To homogenize the surface color, consider using Aqualit-T260 Honext Original from Sikkens. This solution not only protects the surface and maintains the natural aesthetics but also conceals patterns and color variations in the boards. For acoustic applications, opt for Cetol WF 711 Color Honext Original from Sikkens to retain the material's acoustic properties. Depending on the application, the board should be balanced on the backside. (For more info on finishes, consult the technical department of Honext Material)

6. Cladding installation

The installation as cladding should be carried out using pine or similar battens with a minimum cross-section of 40×20mm, fixed to the wall or ceiling. Ensure panels are fully secured along the entire long side. Maintain a 40 cm gap between battens for optimal results. Various attachment methods can be used: adhesive, adhesive with nails, visible screws, hanging, or technical fastening.

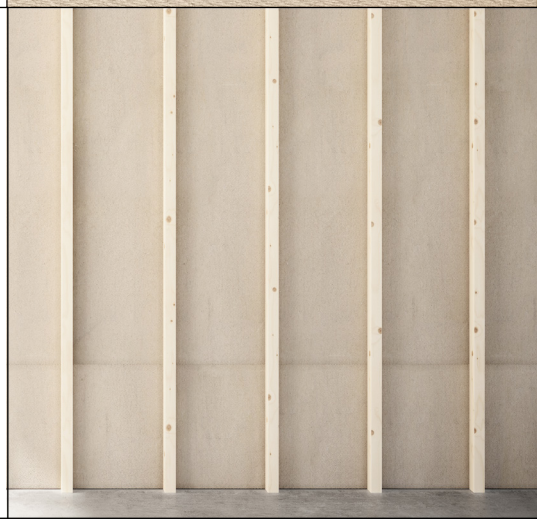
Fig.5

7. Handling and storage

The HONEXT® Boards should be handled with caution by two persons, avoiding dragging them against each other to prevent scratching the surface.

Do not rest the weight of the board on its corners, as they can get damaged.

It's important to store the HONEXT® Boards on a flat surface, horizontally, protecting them from temperature changes and environmental humidity. Always keep the edges protected, especially during transportation and storage when the board is outside its original packaging..



For any inquiries please contact:
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